THE CLAIMS:

All the claims in the present application appear below, none of which have been amended by the present Response.

Claim 1 (previously amended): A process for forming a silicon-based thin film by high-frequency plasma chemical vapor deposition, wherein silicon fluoride and hydrogen are contained in a material gas and oxygen atoms are incorporated in the material gas in a concentration of from 0.1 ppm to 0.5 ppm based on a concentration of silicon atoms.

Claim 2 (previously amended): The process according to Claim 1, wherein the hydrogen in the material gas is fed at a flow rate not lower than a flow rate of the silicon fluoride.

Claim 3 (previously amended): The process according to Claim 1, wherein the silicon-based thin film is formed at a pressure of 50 mTorr or higher.

Claim 4 (previously amended): A silicon-based thin film formed by high-frequency plasma chemical vapor deposition, the silicon-based thin film having been formed under conditions that silicon fluoride and hydrogen are contained in a material gas and oxygen atoms are incorporated in the material gas in a concentration of from 0.1 ppm to 0.5 ppm based on a concentration of silicon atoms.

Claim 5 (previously amended): The silicon-based thin film according to Claim 4, which contains the oxygen atoms in an amount of from 1.5×10^{18} atoms/cm^3 to 5.0×10^{19} atoms/cm^3.

Claim 6 (previously amended): The silicon-based thin film according to Claim 4, wherein the hydrogen in the material gas has been fed at a flow rate not lower than a flow rate of the silicon fluoride.

B1 Cont'd

Claim 7 (previously amended): The silicon-based thin film according to Claim 4, wherein the silicon-based thin film has been formed at a pressure of 50 mTorr or higher.

Claim 8 (previously amended): The silicon-based thin film according to Claim 4, wherein the silicon-type thin film has a Raman scattering intensity due to crystalline component which intensity is at least three times the Raman scattering intensity due to amorphous component.

Claim 9 (previously amended): The silicon-based thin film according to Claim 4, wherein the silicon-based thin film has a diffraction intensity of the (220)-plane as measured by X-ray or electron-ray diffraction, which is in a proportion of 50% or more with respect to the total diffraction intensity.

Claim 10 (previously amended): A photovoltaic device comprising a substrate and formed thereon a semiconductor layer having at least one set of p-i-n junction, wherein at least one i-type semiconductor layer has been formed by a process for forming a silicon-based thin film by high-frequency plasma chemical vapor deposition, the i-type semiconductor layer having been formed under conditions that silicon fluoride and hydrogen are contained in a material gas and oxygen atoms are incorporated in the material gas in a concentration of from 0.1 ppm to 0.5 ppm based on a concentration of silicon atoms.

B1 Contd

Claim 11 (original): The photovoltaic device according to Claim 10, wherein the i-type semiconductor layer contains the oxygen atoms in an amount of from 1.5×10^{18} atoms/cm^3 to 5.0×10^{19} atoms/cm^3.

Claim 12 (previously amended): The photovoltaic device according to Claim 10, wherein the hydrogen in the material gas has been fed at a flow rate not lower than a flow rate of the silicon fluoride.

Claim 13 (original): The photovoltaic device according to Claim 10, wherein the i-type semiconductor layer has been formed at a pressure of 50 mTorr or higher.

Claim 14 (original): The photovoltaic device according to Claim 10, wherein the i-type semiconductor layer has a Raman scattering intensity due to crystalline component

which intensity is at least three times the Raman scattering intensity due to amorphous component.

B1 cont'd

Claim 15 (original): The photovoltaic device according to Claim 10, wherein the i-type semiconductor layer has a diffraction intensity of the (220)-plane as measured by X-ray or electron-ray diffraction, which is in a proportion of 50% or more with respect to the total diffraction intensity.

Claims 16-21 (canceled)